• Professor George Box went to Madison, Wisconsin in 1959 to build a statistics department

• By the mid 1970s there was a saying in the profession that

  --If you want to study mathematical theory of statistics, go to Columbia or the west coast;

  --on the other hand, if you want a balanced education in statistics, go to Wisconsin!
I am delighted to attend here the 50th anniversary celebration of the department and to talk about

The earlier years of the Statistics Department

I also went to Madison in 1959, but as a student in the School of Commerce and ended up writing my thesis under Professor Box, joined the department in 1962, staying for the next 20 years. I earnestly hope that the Wisconsin experience can be useful in the further development of statistics programs in schools of higher education
Topics

- Guiding principles for Wisconsin statistics programs
- Some earlier colleagues and departmental atmosphere
- Joint appointments
- Teaching and growth
- Joint Ph. D. programs
- Collaboration with computer science
- Statistical laboratory
- Separation of MS and Ph.D. program requirements
- Some research areas and general research atmosphere
- Some notable students
Guiding Principles

• Statistics is a *tool* for scientific investigation

• Development of *sound statistics* must go hand in hand with *practice*
Some earlier colleagues and departmental atmosphere

1959 – Box, Stu Hunter (DE); RSM, FFD, EVOP
1960 – Gurland (MS/Med), Draper (DE)
1962 – Guttman (MS), Tiao (Econ)
1963 – Sam Wu (ME), Bill Hunter (ChmE)
1964 --Watts (EE-SigP)
1965 – Klotz, Harris (MS)
1966 – Roussas, Johnson, Bhattacharyya, Basu (MS)
1967 – Stigler, Wahba (MS)
1968 – Van Ryzin, Sedransk (MS)


Departmental atmosphere was totally democratic with everything by vote; new assistant professor has the same vote as Box apart from own promotion; and George was chairman only for a few years, by annual election
Joint Appointments

Statistics department occupies a central place for teaching and research in statistics, but having joint appointments with various substantive disciplines.

- Engineering:
  - Chemical – Box, Hunter (Bill)
  - Mechanical – Wu (Sam)

- Medicine: Gurland

- Commerce (Business): Tiao

- Agriculture: Sentura

- MRC, Math, etc
Teaching and growth

- Development of basic service courses: *BS, DE, Eng Stat, TS, etc.*

- Development of introductory math. statistics courses for service and own majors

- Development of core graduate courses: *math. stat.; multi. anal., anal. of var.; decision th.; testing hypo.; etc.* …

- Growth in method courses for service and major degree programs, e.g. *TS, DE*

- Shared teaching across disciplines, TA, RA, from application areas

- Long term survival of department: *enrollment, enrollment, enrollment*
Joint Ph. D. Programs

- School of Commerce: Tiao, R. Miller, J. Hickman, D. Wichern, others; influence of HBS; started in late 60s
  Key features: stat. prelim; econ. theory exam; thesis in stat. methods motivated by research topics in econ. and business
  Output: D.A. Hsu, W. S. Wei, S. Hiller, M. Grupe, W. Bell, C. Chen

- School of Engineering: S. M. Wu (mechanical); Box, W. Hunter, (chem.), Jeff Wu
  Army of Ph. Ds in mech. eng.; revival of production eng.; important joint work with chem.. eng.; quality & prod.

- School of Medicine: J. Gurland, J. Klotz, Van Ryzin, J. Matter, de Mets, L. J. Wei, others; distinctive biostat. program

- School of Agriculture: J. Sentura, R. Nordheim
Collaboration with computer sciences

- Sharing of office building
- Sandwiching faculty office assignments
- Nonlinear regression program
Statistical Laboratory

- Initially proposed by Asit Basu in late 60s; *paired-t test*

- A year course required of all masters and Ph. D. students

- Lab course co-taught and/or co-led by a “Statistician in Residence” and a senior faculty, usually the associate chairman,(First pair: Stu Hunter, Don Watts)

- Soliciting empirical stat. problems across campus, presentation of problems to class, and assignment of projects to participating students

- Project report and funding

- Role of B. Joiner

- Monday night beer seminar(in the 80s)
Separation of MS and Ph.D. Program Requirements

- Motivation
- Separation of course requirements
- Totally different exam requirements
- Revolutionary in nature
- Field of concentration in an appl. area
My Wisconsin years, some research areas and atmosphere

- Bayes – Robustness, non informative prior, random effect models, outliers, etc.

- Time Series -- Box & Jenkins

  ARIMA models : seasonal models-Bacon; residuals test-
  Pierce, Ljung, Newbold,…
  Iterative model building procedure
  (tentative identification, estimation and diagnostic checks)
  Impacts

- Large data set analyses – L. A. ozone and air pollution, stratospheric ozone & temperature

- Other areas e. g. cross validation; empirical Bayes; DE; history of statistics…

- Tech report series

- Literature reading and discussions, beer seminar, extensive
  collaborations among colleagues and students, and across fields of appl.

- Software development—NREG; T.S.; MTS;
Key Features of my early Wisconsin years:

- Theory and Practice
- Joint appointments and programs
- Statistical lab.
- Separation of masters and Ph. D. programs
- Stimulating research environment & democratic atmosphere
- Air pollution and environmental data analyses
- Involvement with Census Bureau
Some notable students: Many outstanding ones in academia: L. J. Wei, Wing Wong and Ruey Tsay; in industrial and government, Bill Hill, Bill Bell, and many others
THANK YOU!